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REC'D 10 MAY 2005
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Artcle 36 and Rule 70)

Applicant's or agent's file reference P04P3006/PCT	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. **PCT/KR2003/000062**	International filing date *(day/month/year)* **13 JANUARY 2003 (13.01.2003)**	Priority date *(day/month/year)* 24 DECEMBER 2002 (24.12.2002)

International Patent Classification (IPC) or national classification and IPC

IPC7 F04B 15/02

Applicant

HAN, LackSu

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demamd	Date of completion of this report
21 JULY 2004 (21.07.2004)	12 APRIL 2005 (12.04.2005)

Name and mailing address of the IPEA/KR
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International aplication No.
PCT/KR2003/000062

I. Basis of the report

1. With regard to the elements of the international application:*

☒ the international application as originally filed

☐ the description:
pages _____ , as originally filed
pages _____ , filed with the demand
pages _____ , filed with the letter of _____

☐ the claims:
pages _____ , as originally filed
pages _____ , as amended (together with any statment) under Article 19
pages _____ , filed with the demand
pages _____ , filed with the letter of _____

☐ the drawings:
pages _____ , as originally filed
pages _____ , filed with the demand
pages _____ , filed with the letter of _____

☐ the sequence listing part of the description:
pages _____ , as originally filed
pages _____ , filed with the demand
pages _____ , filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language English which is

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

☒ the language of publication of the international application(under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination(under Rules 55.2 and/ or 55.3).

3. With regard to any **nucleotide** and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained inthe international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disc losure in the international applicationas as filed has been furinshed.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box(Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed." and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.*

INTERNATIONAL PRELIMINARY EXAMINATION

International aplication No.
PCT/KR2003/000062

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	2,3,5,14	YES
	Claims	1,4,6-13,15	NO
Inventive step (IS)	Claims		YES
	Claims	2,3,5,14	NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Reference is made to the following document:

D1: KR 99-78553 A

The subject matter of the present invention relates to a sliding motion structure for a concrete pump which is capable of reducing the maintenance cost for replacing the sliding motion structure, and preventing the internal walls of inlet/outlet ports for inputting/outputting concrete from being worn out, and the external end of a ring-shaped movable member from being unevenly worn out, by making the friction part of the sliding motion structure out of a plurality of friction blocks having strong wear resistance, thereby reducing the wear rate thereof.

D1 relates to a sliding motion structure for a concrete pump which is capable of reducing the replacement rate of the sliding motion structure and preventing the internal walls of inlet and outlet ports for inputting and outputting concrete from being worn out and the external end of a coupling tube from being unevenly worn out, by making the friction part of the sliding motion structure out of a plurality of friction blocks having strong wear resistance, thereby reducing the wear rate thereof.

1. Novelty (Article 33(2) PCT)

Claims 1, 4, 6, and 9-12 of the present application relate to a sliding motion structure for a concrete pump, wherein the second friction member formed of tungsten carbide is connected onto the surface of the wear plate between a pair of throughholes which are formed by the first friction member and the wear plate along the end of the coupling tube, thereby being protruded from the surface of the wear plate, and a third friction member formed of tungsten carbide is connected to the first and second friction members along the ends of the connecting pipes.

(Continued on Supplemental Sheet.)

Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of:

Box V.

Claims 13 and 15 of the present application relate to a method for manufacturing the sliding motion structure for a concrete pump. The method of claims 13 and 15 is substantially the same as that of D1 (see claims 1-8 of D1), and claims 13 and 15 and D1 have a similar operational effect for increasing the friction resistance by installing friction members formed of cemented carbide at the friction part of the sliding motion structure.

Claim 7 of the present application relates to the sliding motion structure as set forth in claim 1, wherein the wear plate of the plane fixed member is connected to the ends of the concrete cylinders by bolts which are fixed to bolt fixing holes penetrating the circumference of the wear plate. The technical feature of claim 7 is substantially the same as that of D1 whose detailed description shows that a plurality of connection holes (114) for fixing the wear plate (110) to the ends of the concrete cylinders by bolts are formed along the circumference of the wear plate.

Claim 8 of the present application relates to the sliding motion structure as recited in claim 1, wherein a connecting member connected to the lower part of the second friction member is connected to the wear plate by bolts. The technical feature of claim 8 is substantially the same as that of D1 whose detailed description shows that a plurality of bolts (143) penetrate the recession (111) of the wear plate and then are connected to the connecting member (148).

2. Inventive Step (Article 33(3) PCT)

Claims 2, 3 and 5 of the present application relate to the sliding motion structure as recited in claim 1, wherein the coupling tubes of the plane fixed member are provided with protrusions, which guide the coupling positions of the technical features when the technical features are connected. The detailed description of D1 shows that protrusions (112b, 113b) are provided at an upper portion of the internal wall of throughholes (112a, 113a) of the wear plate (110), and that recessions (120b, 130b) are inserted into the protrusions (112b, 113b) at the upper portion of the external wall of the coupling tubes (120, 130). Though the protrusions of claims 2, 3 and 5 are not the same as those of D1, they have the same operational effect for guiding the coupling positions of technical features when the technical features are connected and for facilitating the connection. In addition, changing the shape and position of protrusions does not involve any technical difficulty. Accordingly, the protrusions of claims 2, 3, and 5 can be obtained by a simple change in those of the prior art by a person skilled in the art, where necessary.
(Continued on Supplemental Sheet.)

Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of:

Claim 14 adds a step to claim 13, that is, the step of connecting the wear plate to the ends of the concrete cylinders after connecting the connecting member to the wear plate between the first friction members. In the sliding motion structure having bolts which penetrate the wear plate from the plane fixed member toward the connecting member, the plane fixed member can be connected to the end of the concrete cylinder only after the second friction member is connected, and after the plane fixed member is connected to the end of concrete cylinder, the second friction member cannot be fixed to the plane fixed member. Consequently, connecting the plane fixed member to the end of concrete cylinder after fixing the second friction member is essential to the sliding motion structure of the present invention, and is obvious to a person skilled in the art.